

Claims

1. A home automation communication system using advanced asymmetric digital subscriber line (ADSL),  
5 comprising:

a home automation communication server for providing a home automation service;

a home automation service channel means included in an ADSL terminal for transmitting/receiving data with home  
10 automation devices in wired or wireless communication mode using low rate signals; and

a home automation multiplexing means included in an ADSL accessing means for multiplexing data between the home communication server and the home automation service channel  
15 means.

2. The system as recited in claim 1, wherein the home automation service channel means includes:

a wireless home automation service means for performing  
20 functions of a wireless home network and a wireless home automation interface;

a wired home automation service means for performing functions of a wired home network and a wired home automation interface;

25 a home automation service (HAS) framer connected to a low rate processing unit of ADSL termination unit - remote (ATU-R) for generating a HAS message format based on message types and information parameters and transferring data to the low rate processing unit and extracting a message type  
30 and information parameter from the received HAS message format from the low rate processing unit; and

a HAS agent for receiving messages and information parameter from the HAS framer, performing a home service process and transferring home automation data to the  
35 wireless HAS circuit and the wired HAS circuit.

SUBSTITUTE SPECIFICATION - CLEAN COPY

3. The system as recited in claim 1, wherein the home automation service multiplexing means includes:

a low rate frame accessing means connected to a low rate processing unit of ADSL termination unit - central  
5 (ATU-C) for receiving and transferring low rate data; and

a home automation service processing means connected to the home automation communication means for performing home automation service process and transmitting/receiving data with the home automation service channel means through the  
10 low rate frame accessing means.

4. The system as recited in any one of claims 1 to 3, wherein the advanced ADSL includes a dual link discrete multitone (DLDMT) method.

15

5. The system as recited in any one of claims 1 to 3, wherein the advanced ADSL includes an asynchronous transfer mode (ATM).

20 6. The system as recited in any one of claims 1 to 3, wherein home automation protocol message used for transferring information to the home automation service, includes:

flag fields which are first and last octets for showing  
25 start and end of V5 envelope function (V5EF) frame;

V5 data link address fields which are second/third octets and third/forth octets, wherein the second/third octets and third/forth octets are identically copied;

a protocol identifier field which is an eighth octet;  
30 control fields which are sixth and seventh octets;

frame check sequence (FCS) fields in which n-1<sup>st</sup> and n-2<sup>nd</sup> octets are generated based on a link access procedure for the ISDN D channel (LAPD) protocol standard;

HAS reference number fields which are ninth and tenth  
35 octets, wherein the HAS reference number field is effective

SUBSTITUTE SPECIFICATION – CLEAN COPY

until a process of the message is completed;

a message type field for allocating message identification numbers for requesting and responding to control a home automation service, searching home automation data, transferring data, reporting status of service,

automatic metering, home radio and home data service; and information parameter fields for storing parameters for processing messages and data for application service.

7. The system as recited in claim 6, wherein the information parameter fields include:

an information parameter identification (ID) for identifying home automation service information among other V5EF information parameters;

a length of information parameter field for showing a size of HAS information parameter in octet;

a user port ID field for identifying ADSL terminal, wherein a size of the user port ID field is 4 octets and the user port ID field is corresponding to a phone number of a subscriber; and

a status field for showing status of port that is identified by the user port ID and operation information, e.g., calling, disabled, not using, call processing, testing and allocating/clearing of time slot for 64Kbps clear channel.